

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A multipurpose multifunctional (M/M) interface device, comprising:

A. a plurality of communication ports, including:

- 1) one or more system ports configured to couple to a system to be diagnosed;
- 2) one or more diagnostic ports configured to couple to ~~at least~~more than one type of diagnostic system;

B. a set of power management modules configured to provide, selectively, power at a full power level and a reduced power level; and

C. a main processor module configured to control communications between the system ports and the diagnostic ports, and to selectively transition the M/M interface device between a standby mode at the reduced power level and an operational mode at the full power level.

2. (Original) The device of claim 1, wherein a transition of the M/M device from the standby mode to the operational mode is responsive to an occurrence of at least one of a set of power up trigger events, wherein the set of power up trigger events includes activity on at least one of the diagnostic ports or system ports.

3. (Original) The device of claim 2, wherein the one or more diagnostic ports includes a set of serial diagnostic ports and the set of power up trigger events includes activity on at least one of the set of serial diagnostic ports.

4. (Original) The device of claim 2, wherein the set of power up trigger events includes a restoration of full power.

5. (Original) The device of claim 1, wherein a transition of the M/M device from the operational mode to the standby mode is responsive to an occurrence of at least one of a set of power down trigger events, wherein the set of power down events includes inactivity on at least one of the diagnostic ports or system ports for a predetermined period of time.

6. (Original) The device of claim 5, wherein the set of power down trigger events includes a loss of full power.

7. (Original) The device of claim 1, wherein the set of power management modules includes a main power module configured to provide the high power level from at least one external power source.

8. (Original) The device of claim 1, wherein the set of power management modules includes a battery power module configured to provide at least one of the high power level and the reduced power level from at least one internal battery.

9. (Original) The device of claim 1, wherein the set of power management modules includes a battery charger.

10. (Original) The device of claim 9, wherein the battery charger is configured to charge a rechargeable battery at a fast rate when the device is coupled to a power source of a voltage about equal to or greater than a voltage rating of the battery, and at a slow rate when the power source is of a voltage substantially less than the voltage rating of the battery.

11. (Original) The device of claim 9, wherein the battery charger is configured to charge an external battery coupled to the M/M interface device via a power port.

12. (Original) The device of claim 9, wherein the M/M interface device includes a thermal sensor, and the main processor module varies the charge rate as a function of an internal temperature of the M/M device measured by the thermal sensor.

13. (Original) The device of claim 1, wherein the set of power management modules is configured to provide power to at least one of the systems to be diagnosed or the diagnostic system.

14. (Original) The device of claim 1, wherein the main processor module is configured to generate analog signals from digital signals received from the one or more system ports, and to provide the analog signals to at least one diagnostic port.

15. (Currently Amended) A multipurpose multifunctional (M/M) interface device for vehicle diagnostics, comprising:

- A. a plurality of communication ports, including:
 - 1) one or more vehicle system ports configured to couple to at least one vehicle;
 - 2) one or more diagnostic ports configured to couple to ~~at least~~more than one type of vehicle diagnostic system;
- B. a set of power management modules configured to provide a full power level and a reduced power level; and
- C. a main processor module configured to control communications between the system ports and the diagnostic ports, the main processor module also configured to selectively transition the M/M interface device between a standby mode at the reduced power level and an operational mode at the full power level.

16. (Original) The device of claim 15, wherein the communications ports include an inductive port configured to couple to an ignition system of the at least one vehicle, and the main processor module is configured to measure revolutions per minute (RPM) of a vehicle engine as a function of a signal received by the inductive port.

17. (Original) The device of claim 15, wherein the communications ports include a radio frequency (RF) antenna port configured to couple to a high voltage portion of an ignition system of the at least one vehicle, and the main processor module is configured to measure RPMs of a vehicle engine as a function of a signal received by the RF port.

18. (Original) The device of claim 15, wherein the communications ports include an on-board diagnostics (OBD) port configured to couple to an OBD device of the at least one vehicle, and the main processor module is configured to measure RPM or other OBD signals of a vehicle engine as a function of a signal received by the OBD port.

19. (Original) The device of claim 15, wherein the main processor module and the set of power management modules are components mounted on a printed circuit board (PCB).

20. (Original) The device of claim 15, wherein the communication ports include one or more RS-232 ports, and the M/M device comprises a communication port processor configured for processing messages and data related to the one or more RS-232 ports.

21. (Original) The device of claim 15, wherein the set of power management modules is configured to power one or more external devices, including one or more of a display device, a personal digital assistant, or the at least one vehicle diagnostic system.

22. (Original) The device of claim 15, wherein the at least one vehicle diagnostic system includes a portable gas analyzer.

23. (Original) The device of claim 15, wherein the set of power management modules includes a battery charger configured to charge at least one battery at a fast rate when the device is coupled to an external power source that is of a voltage about equal to or greater than a voltage rating of the at least one battery, and at a slow rate when the device is coupled to

an external power source that is of a voltage substantially less than the voltage rating of the at least one battery.

24. (Original) The device of claim 23, wherein the at least one battery includes an internal rechargeable battery.

25. (Original) The device of claim 15, wherein the main processor module is configured to generate analog signals from digital signals received from the one or more system ports, and to provide the analog signals to at least one diagnostic port.

26. (Original) The device of claim 15, further comprising a monitor configured to monitor the environmental conditions of the device and to adjust signals generated by the device in response to at least one of the environmental conditions exceeding a threshold value.

27. (New) A multipurpose multifunctional (M/M) interface device for vehicle diagnostics, comprising:

one or more vehicle system ports configured to couple to at least one vehicle;

one or more diagnostic ports configured to couple to at least one vehicle

diagnostic system;

a set of power management modules configured to provide a full power level and a reduced power level; and

a main processor module configured to control communications between the system ports and the diagnostic ports, and to selectively transition the M/M interface

device between a standby mode at the reduced power level and an operational mode at the full power level;

wherein the interface device is non-integral to a vehicle.